TECHNICAL NOTES

U. S. DEPARTMENT OF AGRICULTURE SOUTH DAKOTA SOIL CONSERVATION SERVICE

Woodland No. 29 Sheridan I. Dronen, Forester September 26, 1985

Windbreak Effects on Home Heating Costs

Research conducted at Indian Head, Saskatchewan, in 1983, shows that a properly designed shelterbelt can reduce the heating bill of a typical farm home by $585 per year. This study reconfirms early findings by Bates. His research was done in 1936 and 1937 near Miller, South Dakota. He found that a good windbreak can reduce fuel consumption as much as 36 percent under high wind and low temperature conditions. He found that under normal winter conditions, there were approximately 25 percent savings in fuel consumption.

The study in Saskatchewan involved two years of extensive testing using two identical electrically heated trailers to simulate housing on prairie farms. By measuring heat loss from a test trailer placed in a well sheltered yard and an identical trailer in a completely exposed location nearby, it was determined that heating costs for the sheltered trailer were reduced in direct proportion to the average windspeed on the exposed site. Their long term average wind speed is 14 mph. The table below shows the percentage of energy savings with three different wind reduction percentages. We usually figure that a seven-row windbreak, with one conifer row, reduces the wind velocity by 70 percent in the winter. Adding more conifers will increase the percent reduction.

Wind Reduction	Energy Savings
60%	22.3%
70%	26.6%
80%	31%

Literature Cited

Bates, C.G., 1945, The Value of Shelterbelts in House-Heating. Journal of Forestry, Vol. 43, pp. 176-196.

White, Robert, 1984, Shelterbelts Help Cut Heating Costs, Farm Light and Power, Feb. 1984.

Dwayne J. Breyer
State Resource Conservationist

File Under: WOODLAND

ENERGY SAVINGS

HOME HEATING

14 M.P.H. AVERAGE WIND

% REDUCTION	% SAVINGS
60	22.3
70	26.6
80	31